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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Rozenn Nicol

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EXAMINER

PAUL, DISLER

ART UNIT

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2615

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,834	Applicant(s) NICOL ET AL.	
	Examiner DISLER PAUL	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/16/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3, 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Ashour et al. (US 6,459,797 B1).

Re claim 1, Ashour et al. disclose of the acoustic synthesis and spatialization method, in which a synthetic sound to be generated is characterized by the nature of a virtual acoustic source and its position relative to a chosen origin, wherein the method comprises a joint step of determining parameters including at least one gain, for defining, at the same time: a loudness characterizing the nature of the source, and the position of the source relative to a predetermined origin ((Ashour, fig.3-4; col.4 line 35-65)).

3. The method as claimed in claim 1, in which the synthetic sound is intended to be reproduced in a holophonic, or binaural, or transaural context, on a plurality of reproduction channels, wherein, during said joint step, a delay between reproduction channels is also determined, to define at the same time: a triggering instant of the sound

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characterizing the nature of the source, and the position of the source relative to a predetermined origin ((Ashour, fig.4; col.3 line 25-30)).

Re claim 13-15 have been analyzed and rejected with respect to claim 1.

Re claim 10, the method as claimed in claim 1 with having synthetic sound at predetermined origin, the synthetic sound wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin (fig.2-3; col.2 line 50-65) for enabling the sound source to be moved around in real time at certain degree from the listener.

11. The method as claimed in claim 10, in which the synthesis engine is implemented in a music editing context, wherein the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin (fig.2-3; col.2 line 50-60).

12. The method as claimed in claim 11, in which a plurality of virtual sources to be synthesized and spatialized are provided,

wherein each source is assigned to a respective position (fig.3; col.3 line 35-45).

3. Claims 1,3- 4,9,13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Hashimoto et al. (US 7,386,139 B2) or Abel et al. (US 5,596,644) .

Re claim 1, (Hashimoto et al. or Abel et al.) disclose of the acoustic synthesis and spatialization method, in which a synthetic sound to be generated is characterized by the nature of a virtual acoustic source and its position relative to a chosen origin, wherein the method comprises a joint step of determining parameters including at least one gain, for defining, at the same time: a loudness characterizing the nature of the source, and the position of the source relative to a predetermined origin (fig.1,3, 21; col.10 line 30-37, col.31 line 12-20; col.20 line 45-55/loudness determined target sound with respect to time transmission) or (Abel, (col.9 line 45-67; col.14 line 35-47; col.8 line 35-54/gain may be used to control perceptual synthesized sound/loudness/gain as function of time with response)).

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3. The method as claimed in claim 1, in which the synthetic sound is intended to be reproduced in a holophonic, or binaural, or transaural context, on a plurality of reproduction channels, wherein, during said joint step, a delay between reproduction channels is also determined, to define at the same time: a triggering instant of the sound characterizing the nature of the source, and the position of the source relative to a predetermined origin (fig.1,3; col.11 line 52-58, col.14 line 10-25/at instant time position of target sound with amplitude) or (Abel, col.10 line 10-20/with discrete time)).

4. The method as claimed in claim 3, wherein the nature of the virtual source is parameterized at least by a temporal loudness variation, over a chosen duration and including a sound triggering instant (see claim 3 rejection).

9. The method as claimed in claim 1, wherein the nature of the virtual source is parameterized by at least one acoustic timbre, by associating the chosen relative loudnesses with harmonics of a frequency corresponding to a pitch of the sound (fig.46; col.30 line 43-56; col.21 line 9-15/speech or vocal of loudness/amplitude with frequency) .

Re claim 13-15 have been analyzed and rejected with respect to claim 1.

4. Claims 6-8, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Abel et al. (US 5,596,644)

6. The method as claimed in claim 3, wherein the spatialization of the virtual source is performed by a binaural synthesis analysis; wherein the analysis synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound (fig.1-3; col.11 line 28-35; col.12 line 50-67.

7. The method as claimed in claim 6, wherein the direction is defined by at least one bias angle and, preferably, by a bias angle and an elevation angle (col.10 line 15-35.

8. The method as claimed in claim 6, wherein the position of the virtual source is parameterized at least by: a number of filtering,

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dependent on the acoustic frequency, a number of weighting gains each associated with a filtering, and a delay for each "left" and "right" channel (fig.6).

claim 10, Abel et al. disclose of the method as claimed in claim 1 with having synthetic sound at predetermined origin, wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin (col.5 line 40-54).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US 7,386,139 B2) and further in view of Ashour et al. (US 6,459,797 B1).

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Re claim 10, **Hashimoto et al. disclose of** the method as claimed in claim 1 with having synthetic sound at predetermined origin, However, Hashimoto et al fail to disclose of wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin. But, Ashour et al. disclose of the synthetic sound wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin (fig.2-3; col.2 line 50-65) for enabling the sound source to be moved around in real time at certain degree from the listener. Thus, taking the combined teaching of Hashimoto et al. and Ashour et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modify Hashimoto et al. with the synthetic sound wherein the method provides for an acoustic synthesis engine to generate spatialized sounds, relative to said predetermined origin for enabling the sound source to be moved around in real time at certain degree from the listener.

11. The method as claimed in claim 10, in which the synthesis engine is implemented in a music editing context, wherein the method also provides for a man-machine interface to place the virtual source in a chosen position relative to the predetermined origin (fig.2-3; col.2 line 50-60).

12. The method as claimed in claim 11, in which a plurality of virtual sources to be synthesized and spatialized are provided,

wherein each source is assigned to a respective position (fig.3; col.3 line 35-45).

2. The method as claimed in claim 1, in which the spatialization of the virtual source is performed (fig.3/spatializing multiple sound synthetic), However, Hashimoto et al. fail to disclose of the ambisonic context, further comprising a step for calculating gains associated with ambisonic components in spherical harmonics base. But, Ashour et al. disclose of the ambisonic context, further comprising a step for calculating gains associated with ambisonic components in spherical harmonics base (fig.3-4; col.3 line 47- col.4 line 41/surround amplitude of each sound signal) for enabling the sound source to be moved/perceived around in real time at certain degree from the listener. Thus, taking the combined teaching of Hashimoto et al. and Ashour et al. as a whole, it would have been obvious for one of the ordinary skill in the art to have modify Hashimoto et al. with the ambisonic context, further comprising a step for calculating gains associated with ambisonic components in spherical harmonics base for enabling the sound source to be moved/perceived around in real time at certain degree from the listener.

7. Claims 6,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US 7,386,139 B2) and further in view of Abel et al. (US 5,596,644).

6. The method as claimed in claim 3, wherein the spatialization of the virtual source is performed by a binaural synthesis analysis; however, Hashimoto et al. fail to disclose of the analysis synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound. But, Abel et al. disclose of the synthesizing system wherein analysis synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound (fig.1-3; col.11 line 28-35; col.12 line 50-67) for obtaining efficient accurate sound quality signals in arbitrary location. Thus, taking the combined teaching of Hashimoto et al. and Abel et al. it would have been obvious for one of the ordinary skill in the art to have modify Abel et al. with the synthesizing system wherein analysis synthesis based on a linear breakdown of transfer functions, these transfer functions being expressed by a linear combination of terms dependent on the frequency of the sound and weighted by terms dependent on the direction of the sound for obtaining efficient accurate sound quality signals in arbitrary location.

8. The method as claimed in claim 6, wherein the position of the virtual source is parameterized at least by: a number of filtering, dependent on the acoustic frequency, a number of weighting gains each associated with a filtering, and a delay for each "left" and "right" channel (Abel, fig.6)

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (US 7,386,139 B2).

5. The method as claimed in claim 4 with the sound delay and phase and duration of the sound signal, However, Hashimoto fail to disclose of the specific wherein said variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase. However, official notice is taken the concept of having a signal wherein specifically signal variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase, and a release phase is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to have modify Hashimoto et al. with the specific of using the variation comprises at least: an instrumental attack phase, a decay phase, a sustain phase,

and a release phase for purpose of identifying the signal based on its unique characteristics.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 2615

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2615